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N°. XXVII.

An account of the beneficial effects of the CASSIA CHAMÆCRISTA, in recruiting worn-out lands, and in enriching such as are naturally poor : together with a botanical description of the plant. By DR. JAMES GREENWAY, of Dinwiddie-County, in Virginia.

Read May
2d, 1788.

IN Maryland, and on the Eastern-Shore of Virginia, they have long been in the practice of sowing a seed, which they call a *bean*, for the sake of recruiting their worn-out lands, and enriching such as are naturally poor. The best information, that I have, is that, they sow a pint of the bean with every bushel of oats. The oats ripen, and are cut, in July, at a time when the young beans are small, and escape the injury of the scythe. The beans flower in August and September. In October, the leaves fall off, the seeds ripen, and the pod opens with such elasticity as to scatter the beans to some distance around. The year following, the field is cultivated with corn ; the beans, which sprout early, are all destroyed with the plow and hoe ; but the more numerous part not making their appearance, above ground, until the corn is laid by, spring up, unhurt by the instruments of agriculture, and furnish seed for the ensuing year, when the field is again sowed in oats. The ground is, alternately, cultivated with corn and oats, annually, and, in the course of eight or ten years, so greatly improved that, without any other manure than the mouldered leaves and stalks of the beans falling on it, the produce will be three * barrels to the acre, on such as, prior to this management, would

* A barrel is a measure of five bushels, much used in Virginia.

would not have produced more than one. This is said to happen from the quick mouldering of the leaves and stalks of the bean plant, and its aptitude to mingle and unite with the earth, without undergoing a fermentation. Thus, the soil is yearly and gradually enriched by this simple and easy process of nature, without the labour and expence of accumulating animal and vegetable matters, to undergo the tedious operation of fermentation and putrefaction; by which the dissolution of those substances is brought about, and filled for manure, in the usual way. Notwithstanding this extraordinary character of the Eastern-Shore-bean, I am clearly of opinion, that our common corn-field-pea is far preferable to every thing, that I have seen tried for this purpose. Every farmer, who leaves his pea-vines on the ground, and does not, in the accustomed manner, pull them up for fodder, must often have observed that they quickly moulder and fall to pieces; furnishing a covering to the ground, which readily unites and blends with it, in the manner mentioned of the bean. If a piece of exhausted land, sufficiently level to prevent its washing away with the rain, be annually cultivated in pease, leaving the stalks and leaves to moulder and crumble to pieces upon it, the ground will improve beyond expectation; the crop of pease increasing, every year, and the soil becoming richer and richer, without any other manure. I was told, by an eminent planter, that poor ground might, by this management alone, be made rich enough to produce good tobacco.

These hints, on the culture of the Eastern-Shore-bean, and the improvement of the land thereby, are related from the best information, I could get. If any gentlemen, experimentally acquainted with it, would favour the public with a more ample account, it will, no doubt, be well received, and be of utility: my principal design, in this

paper is to assist the farmer, as well as the naturalist, by pointing out the plant, and describing it so, that it may be distinguished, with certainty, from all others. The Eastern-Shore-bean,* so called from its being first cultivated there, is found in all parts of Virginia and Carolina; upon all sorts of lands, high and low, except where they are too wet. It has been mistaken, by some, for the common tare, or partridge-pea; to which it bears some resemblance, but is not the same; it belongs to a different class of plants. In describing this plant I shall, first, consider the lovers of science, and give a botanical description, in such terms as are most familiar to them, adding afterwards, for the farmer, a description and explanation, in English, as plain and easy as I possibly can. Being shewed a row of these plants, in September (produced from seed procured by a neighbouring gentleman from the place of cultivation) sown in a drill, and then flowering and filling their pods, I immediately discovered it to be a plant that I had long been acquainted with, having collected, and sent it, with many others, before the war, to a professor of one of the European universities. Upon looking into my botanical catalogue, I find it described, and arranged in the Decandria, or tenth class of Linnæus; in the Monogynia, or first order of that class; in the genus, *Cassia*; and it is that particular species to which he has given the specific name *Chamæcrista*. Doctor Hill, in his *Eden*, page 54, calls it *Golden-Cassia*, and has exhibited a good engraving of it, in his 5th plate, fig. 5. It is mentioned by Gronovius (in the collection made by the late Mr. Clayton of Virginia), in his *Flora Virginica*, fol. 64. *Cassia foliolis multijugatis*, &c. It has been noticed by several other authors. In my catalogue it stands thus :

Cassia

* Called also the Magotty-Bay-bean.

Cassia Chamæcrista Linnæi. *Decandria Monogynia*.

Radix annua fibrosa. Caulis fusquipedalis, erectus, teres, lævis, ramosus, coloratus. Folia alterna, pinnata, multijuga, abrupta; foliolis oppositis, ovalibus, glaberrimis, æqualibus, cum forma et sensibilitate Mimosæ; foliis simillimis. Flores sparsi, pedunculati, specioso aureo colore, antheris purpureis. Stipulæ binæ laterales, erectæ, lanceolatæ, acutæ. Glandula super medium petioli, in plantis majoribus, pedicellata. Pedunculus spatio supra petiolum egreditur. Ab mense Augusti ad finem æstatis floret; solis omnibus habitat, sed humilis maxime gaudet. The Golden-Cassia, or Peacock-Flower, is an annual plant, the root and stalk dying every year. The root is small, consisting of fibres, or threads. The stem is upright; in small plants, not more than eight inches high; but in richer ground, where level and moist, the stem rises to a foot and a half, or two feet; a little crooked, round, smooth and coloured; branching out at the upper part, and bearing many flowers standing, on bending foot stalks, scattered all over the main stem and branches. The petals, or flower-leaves, are five, of a fine golden colour, with ten male stamina, or threads, in the middle, crowned with antheræ, or buttons, of a red or purple colour. These filaments, somewhat resembling the crest or plumage on the head of a peacock, have led some botanists to name it *crista pavonis*, or peacock-flower; but the plant, we here treat of, being a smaller species, they have added *Chamæcrista pavonis*, or Dwarf-Peacock-flower.

In the middle of the ten male filaments, above mentioned; will be readily observed another single thread or style, which is the female part of the flower, producing the seed-vessel, or bean; each pod containing a single row of black shining seeds, fixed to the upper suture or back-seam of the bean: these seeds are nearly flat, four-cornered.

ed, and, not in the least resembling a bean, or pea. The partridge-pea may be easily distinguished from this, by colour and shape, the latter is brown, and kidney-shaped. The leaves are pinnated or winged, (viz. like the Locust, Senna, Partridge-pea, &c.) grow alternately from the stem, on a slender foot-stalk, which has a small gland or wart, placed upon the middle of every one; and these glands, upon the larger plants, are elevated on a pedicle, or short stalk, conspicuous to the naked eye. At the base of every foot-stalk, upon the stem, are found two very small upright spear-pointed leaves called stipulæ, which, by the help of a glass, appear to be hairy. The small leaves are placed oppositely on the midrib, to the number of twenty pair, or more; oval-shaped, smooth, ending in an even number, in shape and sensibility, resembling the leaves of the mimosa, or sensitive plant. They shut up at night and expand in the morning, until through age, they lose this sensibility. Frequent shaking or striking with the hand will cause them to shut up; and in like manner, when gathered, they cannot be carried far before they collapse; so that if the botanist wants to preserve the leaves expanded, in *horto sicco*, he must enclose the plant when gathered on the spot, with as gentle a motion as possible.

The month of October being the season for gathering the seed, the leaves then falling off, the farmer will readily find the plant, upon all sorts of ground, amongst the weeds, and even in Broomstraw old fields; and will easily distinguish it, by the brown colour of the pods, and the redness of the stalks. Let it be pulled up by the roots, dried on a cloth in the sun, and then thrashed out with a stick, and preserved in a bag, hung up in a dry place, until the season for sowing it with oats.